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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,704	03/28/2008	Alexander Cerge Shkolnik	2972/103	4311
2101 7590 01/03/2012 Sunstein Kann Murphy & Timbers LLP 125 SUMMER STREET BOSTON, MA 02110-1618				
EXAMINER				
TRIEU, THAI BA				
ART UNIT		PAPER NUMBER		
3748				
NOTIFICATION DATE		DELIVERY MODE		
01/03/2012		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATENTS@SUNSTEINLAW.COM

Office Action Summary

Application No.

10/585,704

Applicant(s)

SHKOLNIK ET AL.

Examiner

THAI BA TRIEU

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/14/2011 & 12/23/2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2011 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-845)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date 12/23/2011
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Amendment filed on 14 December 2011 and the IDS filed on 23 December 2011.

Applicant's cooperation in correcting the informalities in the drawing and specification are appreciated. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities as well as indefinite claim language is also appreciated.

Claims 37-40 were amended.

Drawings

The Amendment to drawings, submitted on 14 December 2011, has been accepted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 37-39 are rejected under 35 U.S.C. 102(b) as best understood as being anticipated by Lionel Montalvo Morales (Pub. Number DT 24 38 410 A1).

The method as claimed would be inherent during the normal use and operation of Lionel Montalvo Morales device.

Lionel Montalvo Morales discloses a method of operating an internal combustion engine, the method comprising:

providing, in a housing (88b) having an exhaust port (via 110), a piston (70, 72) and a shaft (65, 73), wherein over a course of rotation of the shaft (65, 73) there are successively defined volumes in differing amounts within the housing (88) for phases of compression (A) , combustion (B), and expansion (C) (See Figures 24-45, Page 16, lines 14-22, and Page 17, lines 1-14 of a certified English translation copy),

causing compression of a working medium, introduced through an intake port, by reducing volume in the compression phase from an initial volume to a second volume that is less than the initial volume (See Figures 27-29, Page 16, lines 5-13 of a certified English translation copy);

causing combustion, in the combustion phase, while maintaining substantially constant volume of a combustion chamber defined by the housing (88b) and the piston (70, 72) , of fuel (102) that has been introduced through a fuel port into the working medium (See Figure 22, Page 14, lines 5-12 of a certified English translation copy); and

undergoing expansion, in the expansion phase, of gases from combustion while the volume increases to a third volume that is larger than the initial volume (See Figure 23, Page 14, lines 5-8 of a certified English translation copy);

wherein the volumes defined by the housing and the piston vary, if at all, over the course of shaft rotation, to define successive volumes in differing amounts for phases of compression, combustion, and expansion, in a manner

that is smooth and continuous (See Column 10, lines 19-22 of a certified English translation copy);

(Re. Cl. 38) providing the working medium that is selected from the group consisting of air and a mixture of air and fuel (See Page 16, lines 5-6 of a certified English translation copy);

(Re. Cl. 39) introducing fuel to the working medium has been compressed to the second volume (See Page 5, lines 16-17, Page 11, lines 19-20, Claim 1, lines 17-18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 40 is rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Lionel Montalvo Morales (Pub. Number DT 24 38 410 A1), in view of Dunlap et al. (Patent Number 3,845,745).

Lionel Montalvo Morales discloses the invention as recited above, however fails to disclose maintaining conditions under which the fuel undergoes spontaneous ignition.

Dunlap teaches that it is conventional in the art of internal combustion engines, to utilize injection water into the intake manifold/air-and-fuel mixture in order to maintain conditions under which the fuel undergoes spontaneous ignition (See Column 2, lines 7-55).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized maintaining conditions under which the fuel undergoes spontaneous ignition by injecting water, as taught by Dunlap, to improve the efficiency of the Lionel Montalvo Morales device, since the use thereof would have prevented spontaneous ignition causing by the high temperature of the combustion chambers.

Claim 41-43 are rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Lionel Montalvo Morales (Pub. Number DT 24 38 410 A1), in view of Dunlap et al. (Patent Number 3,845,745), and further in view of Tsubuchi (Patent Number 4,059,086).

The modified Lionel Montalvo Morales device discloses the invention as recited above, however fails to disclose an energy recovery system.

Tsubouchi teaches that it is conventional in the art of internal combustion engines having fuel and lubricating oil supply device, to have (Re. Cl. 41) an energy recovery system (14) to increase the heat of combustion of the fuel medium before it is introduced to the fuel port (See Figures 1-3); and (Re. Cl. 42) the energy recovery system (14) additionally to reduce the temperature of the gases from combustion (See Figures 1-3, Column 2, lines 23-49); (Re. Cl. 43) the energy recovery systems including causing thermo-chemical decomposition of gaseous fuel (See Abstract).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have had an energy recovery system, as taught by Tsubuchi, to

improve the efficiency of the modified Lionel Montalvo Morales device, since the use thereof would have had fuel being gasified thoroughly before being delivered into the engine.

Claims 43-44 are rejected under 35 U.S.C. 103(a) as best understood as being unpatentable over Lionel Montalvo Morales (Pub. Number DT 24 38 410 A1), in view of Dunlap et al. (Patent Number 3,845,745), and further in view of Shkolnik (Pub. Number WO 03/74840 A2).

The modified Lionel Montalvo Morales device discloses the invention as recited above, however fails to disclose an energy recovery system including (Re. Cl. 43) causing thermo-chemical decomposition of gaseous fuel and (Re. Cl. 44) causing a catalyst-assisted reaction occurring at a constant temperature between 450 degrees C and 750 degrees C.

Shkolnik teaches that it is conventional in the art of internal combustion engines to have an energy recovery system including (Re. Cl. 43) causing thermo-chemical decomposition of gaseous fuel and (Re. Cl. 44) causing a catalyst-assisted reaction occurring at a constant temperature between 450 degrees C and 750 degrees C (See page 21, lines 1-28).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have had the energy recovery system, as taught by Shkolnik, to improve the efficiency and to reduce the exhaust emissions --the amount of NO_x and unburned hydrocarbons-- for the modified Lionel Montalvo Morales device.

Response to Arguments

Applicant's arguments filed on 12/14/2011 have been fully considered but they are not persuasive. Accordingly, claims 37-44 are pending.

In response to applicant's argument, set forth on pages 1-12, that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Morales does ***not have a common piston or rotor in the formation of its compression, combustion and over-expansion chambers***) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore, the rejections of claims 37-42 should be sustained.

Information Disclosure Statement

The information disclosure statement (PTO-1449) submitted on **23 December 2011** has been acknowledged and placed in the file. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner. An initialized copy is attached hereto.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THAI BA TRIEU whose telephone number is (571)272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859 or Kenneth Bomberg can be reached on (571) 272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 3748

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TTB
December 27, 2011

/Thai-Ba Trieu/
Primary Examiner
Art Unit 3748